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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,418	03/09/2001	Lawrence E. Conway	RDM 01-002	4815

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EXAMINER

RICHARDSON, JOHN A

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 02/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/803,418

Applicant(s)

CONWAY ET AL.

Examiner

John Richardson

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Non Final Rejection

1). The applicant's Appeal Brief dated October 31 2003 is acknowledged. The examiner is withdrawing the Final Rejection in Office action of July 16 2003, and the following is a further action on the merits.

Claims 21-36 are examined and claims 1-20 stand withdrawn.

2). The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3). The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4). The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5). Claims 21 to 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 is inaccurate, misleading, and the metes and bounds are therefore undefined since the claim refers to limitations comprising **“extracting heat from the cooling water outside the containment at a rate which, within no more than 3 hours, lowers pressure in the reactor pressure vessel to a pressure at or below the pressure in the containment structure”**. This implies that it is the **“extracting of heat”** that lowers the pressure. However, the pressure is actually lowered through a combination of the **“extracting of heat”** and **“the pressure escaping through the loss of coolant pipe break hole”**. As indicated by cited prior art, West (U.S. 3,718,539), Column 4, lines 60+, dependent on the pipe break size, the pressures in the reactor pressure vessel and the containment structure can be equalized in 5 minutes or less. In other words, these claims are broader than the specification disclosure statements relating to the time required to equalize the pressure vessel and containment structure pressures post LOCA event for a specific pipe break (see specification, page 11, lines 15-23).

6). Claims 21 to 23, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matzie et al (Nuclear Engineering and Design 136 (1992)) in view of West et al (U.S. 3,718,539).

The reference discloses a system for an integral design of a nuclear reactor PWR pressure with integral steam generators (Figure 2) within a reactor containment boundary (Figure 3), the said steam generators having a secondary coolant loop (Figure 2, **Secondary Condensing System**) outside the containment structure, a means for extracting heat resulting from a LOCA-loss of coolant accident (Figure 2, **Safety Depressurization System**, page 79, 2nd column, 1st full paragraph, page 80, 2nd column 1st paragraph,), the said safety depressurization system includes a pressure relief / venting valve which provides a means for equalizing the post-LOCA accident pressures in the pressure vessel and the containment structure respectively, the reference discloses suppression tanks gravity feeding coolant to the reactor vessel under post-LOCA conditions (page 80, 1st column 3rd paragraph) and the reference discloses that the system results in no reactor core uncovering (page 81, 1st column, 1st paragraph).

Relating to claim 22, relating to claims 22-23, 28, the reference discloses Pressure Suppression Tanks (Figure 3) above the reactor core for flooding the core and for transferring water to the reactor vessel by gravity (page 80, paragraph 3, page 81, 1st paragraph).

The primary reference discloses the claimed invention except for reciting the precise time period for equalizing the reactor pressure vessel and containment structure post-

Art Unit: 3641

LOCA pressures. The secondary reference, West et al, discloses that the time periods for the equalizing of these pressures is dependent on the size of the LOCA-break. It would have been obvious to one of ordinary skill in the art at the time of the invention to have known that the time for equalizing post-LOCA pressures in the pressure vessel and the containment structure is dependent on the size of LOCA pipe break and that the effect of a pressure relief system such as that disclosed in the secondary reference, (Column 4, lines 30+), would contribute to the time required to equalize the pressure vessel and containment structure pressure under LOCA pipe break events; it is noted that the applicant's claim does not recite that the 3 hour time period is solely dependent on the secondary steam generator loop heat removal system as disclosed in the applicant's specification (items 29) and that this time period is dependent on a specific pipe break size.

7). Claims 24 to 27, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matzie et al (Nuclear Engineering and Design 136 (1992)) in view of West et al (U.S. 3,718,539) as applied to claims 21 to 23, 28.

The primary reference discloses the claimed invention except that the suppression tanks (Figure 3) configuration instead of suppression tanks flooding a cavity beneath the reactor core. The secondary reference discloses that it is well known in the passive PWR reactor art to provide suppression tanks for flooding the reactor vessel cavity in

Art Unit: 3641

the event of LOCA accidents. Therefore, because these two post-LOCA system configurations were nuclear reactor art recognized equivalents at the time of the invention was made, one of ordinary skill in the art would have found it obvious to substitute the secondary components (see West et al, Figures 1, 3, items 72, 76, Column 6, lines 33+) for the primary reference arrangement for the Matzie et al, Figure 3, Pressure Suppression Tanks.

8). Claims 30 to 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Matzie et al (Nuclear Engineering and Design 136 (1992)).

The reference discloses a PWR safe integral reactor in a containment structure filled with gas after a pipe break LOCA event comprising a plurality of steam generators mounted in the reactor vessel (Figure 1), a plurality of Suppression Tanks in the reactor containment boundary (Figure 3), a system that responds to a LOCA pipe break by introducing gas / steam into the containment structure (page 79, 2nd Column, 1st full paragraph, page 80, 1st Column, 3rd paragraph, page 80, 2nd Column 1st paragraph), and relating to claim 31, the reference discloses a gravity means for selectively transferring water from the said suppression tanks (page 79, 2nd Column 1st paragraph, page 80, 1st Column, 3rd paragraph).

9). Claims 32 to 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matzie et al (Nuclear Engineering and Design 136 (1992)) as applied to claims 30 to 31 in view West et al (U.S. 3,718,539).

The primary reference discloses the claimed invention except for except that the suppression tanks (Figure 3) configuration instead of suppression tanks flooding a cavity beneath the reactor core. The secondary reference discloses that it is well known in the passive PWR reactor art to provide suppression tanks for flooding the reactor vessel cavity in the event of LOCA accidents. Therefore, because these two post-LOCA system configurations were nuclear reactor art recognized equivalents at the time of the invention was made, one of ordinary skill in the art would have found it obvious to substitute the secondary components (see West et al, Figures 1, 3, items 72, 76, Column 6, lines 33+) for the primary reference arrangement for the Matzie et al, Figure 3, Pressure Suppression Tanks.

10). The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11). Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Richardson whose telephone number is (703) 305

Art Unit: 3641

0764. The examiner can normally be reached on Monday to Thursday from 7.00 AM to 4.30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone, can be reached on (703) 306 4198. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 305 7687 & (703) 305-7658.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 1113.

John Richardson, PE,

January 20 2004.


MICHAEL J. CARONE
SUPERVISORY PATENT EXAMINER